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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,074	08/22/2003	Christopher Leitz	ASC-58A	9702
21323	7590	09/29/2004	EXAMINER	
TESTA, HURWITZ & THIBEAULT, LLP HIGH STREET TOWER 125 HIGH STREET BOSTON, MA 02110			LEE, HSIEN MING	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/647,074	LEITZ ET AL.
Examiner	Art Unit	
Hsien-Ming Lee	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on \_\_\_\_.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) 1-4,7-9,12-14,17 and 19 is/are allowed.

6)  Claim(s) \_\_\_\_\_ is/are rejected.

7)  Claim(s) 5,6,10,11,15,16,18,20 and 21 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

HSIEN-MING LEE  
PRIMARY EXAMINER

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ . *pp*

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_ .

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5 and 6 are objected to because of the following informalities: the term “the grading rate” lacks antecedent basis.
2. In claim 10, changing “the first semiconductor” (line 1) into – the first semiconductor layer--; and “the first layer” (line 4) into -- the first semiconductor layer- are suggested.
3. In claim 11 (line 2), changing “the first layer” into -- the first semiconductor layer- is suggested.
4. In claims 15 and 16, changing “the relaxed graded layer” into -- the relaxed graded epitaxial layer – is suggested.
5. In claim 18, changing “the first layer” (lines 4 and 6) into –the first semiconductor layer --; and “the relaxed graded layer” (lines 5-6) into -- the relaxed graded epitaxial layer – are suggested.
6. In claim 20 (page 27, line 6) and claim 21 (page 27, line 11 and page 28, line 2), changing “relaxed cap layer” into – relaxed compositionally uniform cap layer – is suggested.

### ***Allowable Subject Matter***

7. Claims 1-4, 7-9, 12-14, 17, and 19 are allowed.
8. Claims 5, 6, 10, 11, 15, 16, 18, 20 and 21 would be allowable if rewritten or amended to overcome the objections as set forth in this Office action.
9. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record, Brasen et al. to EP-0514-018 A2, teach a related art, comprising providing a first semiconductor layer 1 (i.e. a silicon substrate); and epitaxially growing over the first semiconductor layer 1 a relaxed graded layer comprising silicon and germanium (Ge), with increasing germanium content at a gradient **less than about 25% Ge/μm** (abstract and page 3, lines 28-30) to a final composition having a germanium content ranging from greater than 0% to 100% (page 3, lines 34-37).

In contrast, Brasen et al. neither teach nor suggest that the germanium content in the graded layer is increased at a gradient **exceeding** about 25% Ge/μm, wherein the “exceeding about 25 %” is a very critical composition ensuring a low threading dislocation density not exceeding about  $10^7/\text{cm}^2$ .

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (8:00 ~ 6:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-Ming Lee  
Primary Examiner  
Art Unit 2823

Sep. 28, 2004

HSIEN-MING LEE  
PRIMARY EXAMINER  
Sep 28/2004